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W. E. RICKER Shrimp Survey 88-S-1, West Coast of Vancouver Island, April 28-May 8, 1988

J. A. Boutillier, W. R. Harling and D. E. Young

Department of Fisheries and Oceans
Biological Sciences Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

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J. A. Boutillier, W. R. Harling and D. E. Young

Department of Fisheries and Oceans

Biological Sciences Branch

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Nanaimo, British Columbia V9R 5K6

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ABSTRACT

Boutillier, J. A., W. R. Harling and D. E. Young. 1990. W. E. RICKER shrimp survey 88-S-1, west coast of Vancouver Island, April 28-May 8, 1988. Can. Data Rep. Fish. Aquat. Sci. 808: 40 p.

This report summarizes trawl catch data collected off the west coast of Vancouver Island during a shrimp biomass survey in the spring of 1988. This survey is part of a continuing series conducted during the same time period each year to obtain estimates of the biomass and distribution of the pink shrimp, *Pandalus jordani*. Detailed catch records and resulting evaluations of biomass and year-class abundance are presented.

RÉSUMÉ

Boutillier, J. A., W. R. Harling and D. E. Young. 1990. W. E. RICKER shrimp survey 88-S-1, west coast of Vancouver Island, April 28-May 8, 1988. Can. Data Rep. Fish. Aquat. Sci. 808: 40 p.

Le présent rapport présente les données de prises au chalut recueillies au large de la côte ouest de l'île Vancouver au cours d'une campagne d'échantillonnage effectuée au printemps 1988 visant à évaluer la biomasse de crevettes. Cette campagne s'inscrit dans une série de campagnes menées durant la même période chaque année et visant à estimer la biomasse et la distribution de la crevette *Pandalus jordani*. Les registres détaillés des prises et les évaluations de la biomasse et des abondances par classe d'âge obtenues à partir de ces registres sont présentés.

INTRODUCTION

A shrimp biomass survey of the Tofino ground, [fisheries statistical area (FSA) 124] and to a lesser extent, Nootka ground (FSA 125) was conducted April 28-May 8, 1988 using the research vessel W. E. RICKER. The Tofino shrimp ground lies offshore from the west coast of Vancouver Island between 48°40′ and 49°15′ north latitude and Nootka ground lies between 49°15′ and 49°35′ N latitude (Fig. 1). Since 1973, this type of survey has been conducted on these grounds 13 times in spring (April-May) and 3 times in late summer (August-September). The purpose of these cruises is to provide relative estimates of total biomass, year-class abundance, and distribution of the smooth pink shrimp, *Pandalus jordani*.

SURVEY DESIGN AND FISHING GEAR

The biomass trawl survey was carried out using a standard 18.6 m, National Marine Fisheries Service (NMFS) high-rising, shrimp-sampling trawl (Boutillier et al. 1977). Trawl locations for the biomass survey were established using a systematic grid pattern based on Loran C blocks. Tows were made diagonally through adjacent 5900-Z 10 microsecond blocks along successive 5900-Y lines, 20 microseconds apart. Tow duration, except when tows were fouled, was 30 minutes and the distance covered, depending on tide and wind, ranged from 1.1 to 1.7 nautical miles (M) with an average distance of 1.35 M. From each trawl catch dumped on deck, large species were sorted, weighed and discarded. A small, random, bucket sample of shrimp was collected and processed to determine the number of shrimp per kilogram (No./kg). The 1 kg sample was then sorted by sex, and the carapace length measured (orbit of the eye to mid-dorsal, posterior margin of the carapace). The balance of each catch, consisting of shrimp, small fish, and invertebrates, was shovelled into baskets and weighed. One or two tubs of this mixed catch were then sorted by species and each species weighed to determine the proportional catch composition. The calculated percentage of species by weight was then used to extrapolate the total weights of shrimp and other species in the catch.

Biomass and year-class abundance indices were calculated using a bicubic spline. For this analysis the Tofino ground is defined as a rectangular area that starts at 126°05′ longitude and 48°35′ N latitude and extends 50 M at 322° True (T) and 15 M at 52°T. This area is divided into 2 sq M cells which are 1 M wide and 2 M long. The towable area within this large area is identified by a set of untowable boundary points which were determined from problem areas found in all previous surveys. The calculation of biomass assumes that all the towable area inside the boundary is potential shrimp grounds. This analysis sets the density [(kg or #)/0.2 sq. M towed] obtained in the tow or, in the case of repeated tows, the mean of the two tows, equivalent to the density at the grid point which corresponds to the centre point of the tow. The 2 sq M matrix is divided into smaller 0.2 sq. M area and a bicubic spline is used to fill blank grid cells with interpolated values. The biomass and areas of concentration are then calculated by adding

the values greater than some minimal density to determine biomass and by counting the grid cells and multiplying by 0.2 to determine the areas.

RESULTS

A total of 81 trawl tows were completed; 52 during the first phase on Tofino ground, 9 on Nootka ground, and 20 during the second phase on Tofino ground. Total catch by important species is summarized in Table I. Detailed fishing logs and catch records for Tofino and Nootka grounds are presented in Appendix Table I.

TOFINO GROUND PHASE 1 AND PHASE 2

Tow locations for Tofino ground are shown in Figure 2. This area-swept biomass survey found that shrimp were in concentrations >1 tonne/sq M in a 179 sq. M area. Of the combined 72 tows made on the Tofino grounds, 70 tows were usable and 2 tows were unusable because excessive amounts of dogfish and herring in the catch necessitated that the catch be discarded while still in the water. Indeed, in one instance, the codend separated from the net and was lost completely. Of the 70 usable tows, 54 contained shrimp varying in amounts from a trace to 939 kg per nautical mile towed (kg/M), with a mean catch rate of 102 kg/M (Table 2). An unweighted estimate of the age-class structure of the shrimp determined that the samples were composed of 8% 1-year-old, 37% 2-year-old, and 55% 3-year-old animals. Mean carapace size for these three age groups were 13.5, 17.7, and 21.1 mm, respectively. The number of shrimp per kilogram ranged from 162 to 304 while the size and density of shrimp for each tow combined to give an overall weighted mean of 207 shrimp/kg.

NOOTKA GROUND

During this survey, insufficient time precluded a thorough assessment of the area. As a result, only 9 tows were completed (Fig. 2 insert). Of these, 8 contained shrimp in concentrations which ranged from trace to 116 kg/M (Table 2). An unweighted estimate of the age-class structure of the shrimp determined that the samples were composed of 9% 1-year-old, 48% 2-year-old, and 42% 3-year-old animals. Mean carapace size of these three age groups were 12.6, 16.7, and 19.9 mm, respectively. The number of shrimp per kilogram ranged from 211 to 448 while the size and density of shrimp for each tow combined to give an overall weighted mean of 250 shrimp/kg.

DISCUSSION

In comparison with the 1987 assessment, the 1988 overall assessment of shrimp numbers shows only about a 6% decline on the grounds. The major difference between the two assessments was a shift in the proportions of 2+ and 3+ animals. Between 1987 and 1988, the 2+ index declined almost 49% (7.2×10^8 to 3.7×10^8). However, the relatively strong 2+ yearclass in 1987 resulted in a strong 3+ yearclass in 1988 which increased from 2.9×10^8 to 5.8×10^8 animals.

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Table 1. Total catch, by species, for shrimp biomass survey 88-S-1, April 28-May 8, 1988.

Species		Weight (kg)	% of catch
Dogfish	*Squalus acanthias*	24,602	61
Pink shrimp	*Pandalus jordani*	7,715	19
Eulachon	*Thaleichthys pacificus*	2,245	6
Herring	*Clupea harengus pallasi*	872	2
Pacific cod	*Gadus macrocephalus*	863	2
Yellowtail rockfish	*Sebastes flavidus*	658	2
Canary rockfish	*S. pinniger*	477	1
Turbot	*Atheresthes stomias*	399	1
Lingcod	*Ophiodon elongatus*	366	1
Dab	*Citharichthys* spp.	252	1
Others[a]		1,446	4
Totals		39,895	100

[a]Those species which each contribute less than 1% to the total catch. (See footnotes to Appendix Table 1 for names.)

Table 2. *P. jordani* catch (kg) per nautical mile (M) for Tofino and Nootka ground, 88-S-1, April 26-May 8, 1988.

Tow No.	Depth (metres)	Duration (min)	M	Weight (kg)	No./kg	Kg/M
			a) Tofino Ground			
1	131-135	30	1.5	Tr	-	-
2	112-115	31	1.5	0	-	-
3	98-98	30	1.4	0	-	-
4	92-91	12	0.4	0	-	-
5	102-103	30	1.3	0	-	-
6	120-120	30	1.2	Tr	-	-
7	119-120	30	1.2	Tr	-	-
8	142-146	30	1.5	35	219	23.3
9	153-156	30	1.6	11	244	6.9
10	159-163	30	1.7	0	-	-
11	144-145	30	1.3	17	198	13.1
12	126-126	30	1.2	33	186	27.5
13	106-106	30	1.2	Tr	-	-
14	107-130	35	1.5	?	-	N.G.
15	125-125	15	1.1	?	181	N.G.
16	142-145	30	1.4	74	203	52.9
17	155-155	32	1.4	36	254	25.7
18	169-171	30	1.2	0	-	-
19	155-159	30	1.1	228	237	207.3
20	153-158	33	1.2	65	202	54.2
21	134-135	31	1.5	7	165	4.7
22	124-124	9	0.4	3	185	7.5
23	125-130	24	1.3	18	205	13.8
24	138-141	31	1.25	21	192	16.8
25	151-152	31	1.5	98	206	65.3
26	145-147	31	1.2	58	191	48.3
27	133-135	30	1.2	49	185	40.8
28	134-135	30	1.2	40	192	33.3
29	122-122	30	1.4	10	?	7.1
30	143-147	30	1.4	17	169	13.7
31	137-137	30	1.7	48	162	28.2
32	126-127	17	0.7	4	192	5.7
33	137-141	30	1.3	79	182	60.8
34	137-142	30	1.4	38	166	27.1
35	129-132	27	1.3	19	178	14.6
36	116-117	30	1.3	12	184	9.2
37	131-137	30	1.45	1362	192	939.3
38	125-127	30	1.3	40	154	30.8
39	121-122	30	1.45	6	180	4.1
40	113-114	15	0.75	8	200	10.7

Table 2. Cont'd.

Tow No.	Depth (metres)	Duration (min)	M	Weight (kg)	No./kg	Kg/M
41	122-124	30	1.3	127	167	97.7
42	125-129	35	1.6	143	173	89.4
43	123-128	30	1.4	560	194	400.0
44	123-125	32	1.5	9	234	6.0
45	113-114	30	1.4	3	207	2.0
46	108-109	30	1.5	28	176	18.7
47	121-122	30	1.4	1	265	Tr
48	119-122	31	1.4	58	201	41.4
49	117-118	30	1.45	243	195	167.6
50	118-119	30	1.2	424	185	353.3
51	106-106	16	0.7	160	288	228.6
52	97-97	30	1.3	0	-	-
63	103-105	32	1.4	1	246	Tr
64	104-105	30	1.3	26	191	20.0
65	109-112	30	1.5	25	191	16.7
66	101-101	23	1.2	163	270	108.3
67	102-103	31	1.5	366	304	244.0
68	109-108	30	1.55	189	275	121.9
69	113-114	30	1.5	2	232	1.0
70	100-102	19	1.0	86	239	86.0
71	93-93	30	1.35	0	-	-
72	91-92	30	1.35	0	-	-
73	109-109	29	1.25	172	196	137.6
74	108-108	30	1.2	1019	229	849.2
75	119-123	30	1.3	269	190	206.9
76	114-117	32	1.4	711	211	507.9
77	100-107	30	1.3	Tr	-	-
78	111-111	30	1.3	Tr	-	-
79	176-174	20	1.0	0	-	-
80	142-137	30	1.2	17	177	14.2
81	133-129	30	1.3	4	214	3.1
			b) Nootka Ground			
53	149-158	30	1.5	Tr	-	Tr
54	147-150	31	1.5	5	?	3.3
55	143-143	30	1.2	25	211	20.8
56	134-137	31	1.3	0	-	-
57	132-135	30	1.3	151	253	116.3
58	132-134	30	1.2	80	218	66.7
59	124-127	31	1.25	43	270	34.4
60	113-114	30	1.5	5	448	3.3
61	122-122	30	1.2	19	335	15.8
62	135-136	30	1.2	15	302	12.5

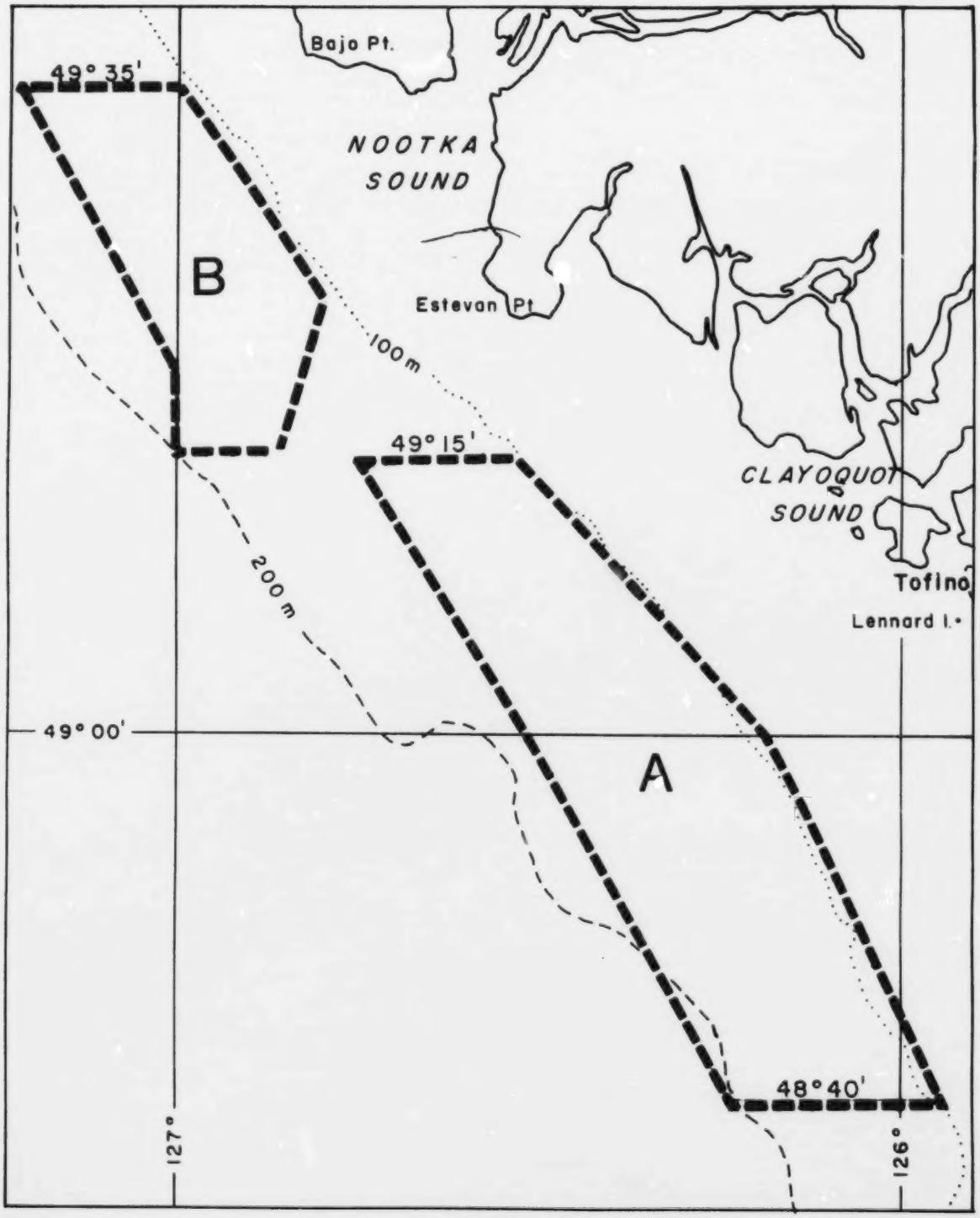

Fig. 1. General location of the Tofino (A) and Nootka (B) smooth pink shrimp (*P. jordani*) fishing grounds off west coast Vancouver Island.

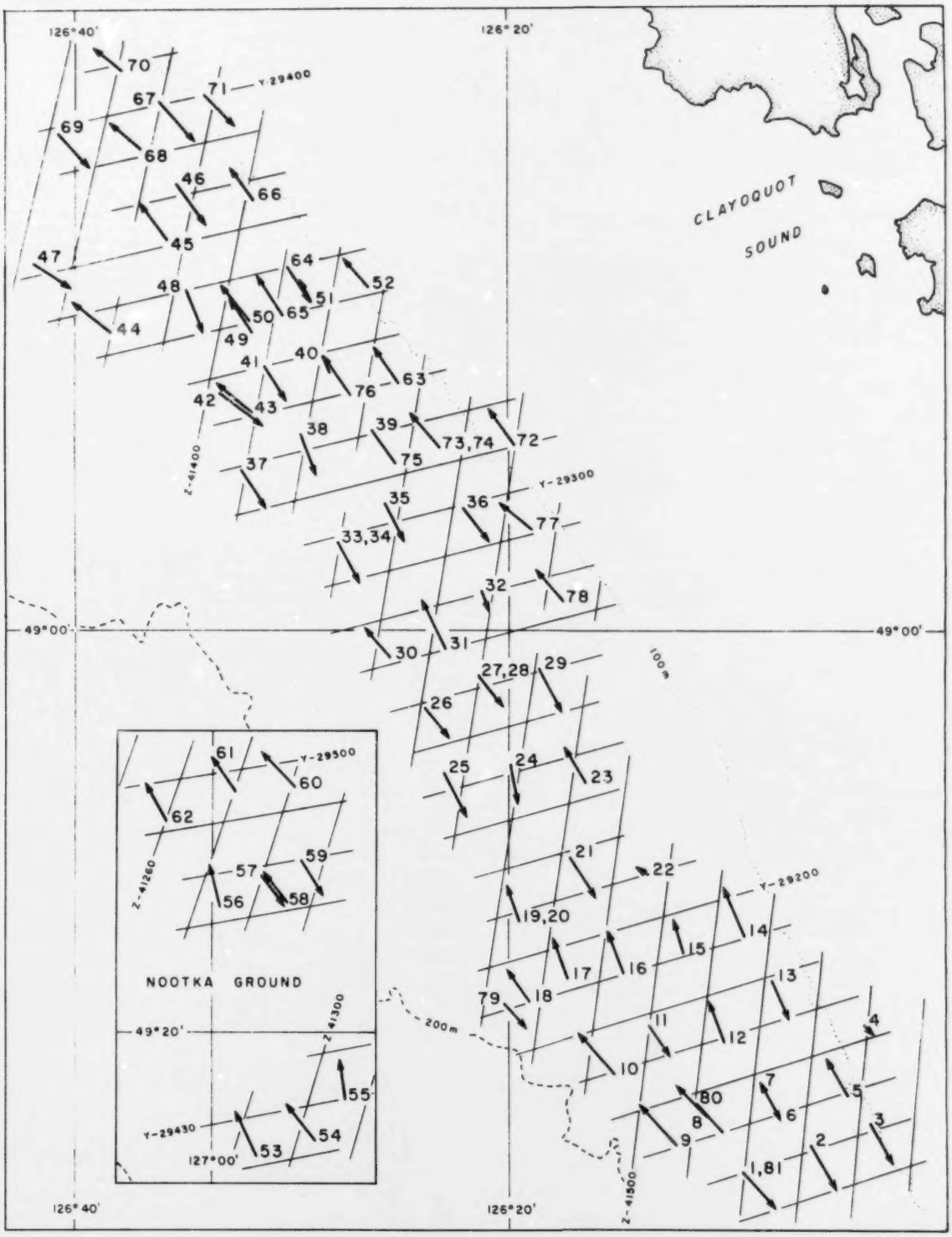

Fig. 2. Location of tows completed by F.R.V. W.E. RICKER during shrimp cruise 89-S-1 off west coast Vancouver Island, April 28-May 8, 1988.

APPENDIX TABLE 1

APPENDIX TABLE 1. FISHING LOGS AND CATCH DATA FOR TOFINO AND NOOTKA GROUNDS SURVEY 88-S-1, APRIL 28-MAY 8, 1988. (SEE FOOTNOTE AT END OF TABLE FOR EXPLANATION OF TERMS)

HAUL NO.	1	2	3	4	5	6
DATE	APRIL 28	APRIL 28	APRIL 28	APRIL 28	APRIL 28	APRIL 29
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1224	1347	1502	1632	1726	0717
DURATION(HR.MIN)	.30	.31	.30	.08	.30	.30
START N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	43.5	44.3	45.0	48.0	47.0	45.0
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	09.2	06.2	03.5	03.7	05.5	07.5
DIRECTION (DEG.TRUE)	138	151	152	135	330	335
FINISH N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	42.4	43.1	43.8	47.7	45.8	46.3
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	07.8	05.2	02.5	03.3	04.5	08.5
DISTANCE NAUT. MI.	1.5	1.5	1.4	.4	1.3	1.2
DEPTH (METERS)	135-131	115-112	98- 98	92- 91	103-102	120-120
SURFACE TEMP (DEG.C)	..	..	10.2	..	..	..
BOTTOM TEMP (DEG.C)	..	..	7.7	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	256	216	19	88	87	257
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	1	2	3	4	5	6
DATE	APRIL 28	APRIL 28	APRIL 28	APRIL 28	APRIL 28	APRIL 29
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	256	216	19	88	87	257
SHRIMP						
PINK (JORDANI)	T	..	..	..	..	T
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	..	..	T
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	T
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	T	..	..	..	T
FLATFISH						
DAB (PACIFIC)	..	..	2	..	2	T
DOVER SOLE	..	..	..	..	..	..
HALIBUT	..	..	..	5	..	..
REX SOLE	..	..	..	..	T	2
SLENDER SOLE	T	T	..	..	..	4
TURBOT	..	T	..	..	..	..
OTHERS	..	T	1	..	1	1
ROCKFISH						
S. FLAVIDUS	..	..	..	..	..	2
S. PINNIGER	..	..	..	..	..	..
OTHERS	..	..	..	..	..	T
OTHER ROUNDFISH						
EULACHON	7	..	..	..	..	..
HERRING	20	78	8	75	75	30
LINGCOD	..	..	..	4	..	30
PACIFIC COD	1	3	..	..	..	11
PACIFIC TOMCOD	..	..	T	..	..	..
WALLEYE POLLOCK	T	..	..	..	T	T
OTHERS	..	..	..	T	..	T
SELACHI						
DOGFISH	228	135	8	4	9	176
SKATES	..	..	..	..	..	1
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	7	8	9	10	11	12
DATE	APRIL 29	APRIL 29	APRIL 29	APRIL 29	APRIL 29	APRIL 29
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	0821	0923	1159	1303	1513	1638
DURATION(HR.MIN)	.30	.30	.30	.31	.30	.30
START N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	46.2	45.1	44.4	46.4	48.0	47.5
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	08.5	10.8	12.3	15.1	13.6	10.2
DIRECTION (DEG.TRUE)	154	316	318	320	146	340
FINISH N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	45.1	46.1	45.6	47.7	46.9	48.7
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	07.6	12.3	13.6	16.6	12.6	10.8
DISTANCE NAUT. MI.	1.2	1.5	1.6	1.7	1.3	1.2
DEPTH (METERS)	120-119	142-146	153-156	159-163	145-144	126-126
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	178	188	233	174	388	399
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	7	8	9	10	11	12
DATE	APRIL 29	APRIL 29	APRIL 29	APRIL 29	APRIL 29	APRIL 29
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	178	188	233	174	388	399
SHRIMP						
PINK (JORDANI)	T	35	11	..	17	33
NUM/KG	..	216	244	..	198	186
OTHER SHRIMP	..	..	..	..	T	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	T	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	..	..	..	..	..	5
DOVER SOLE	..	..	..	..	..	T
HALIBUT	3	9	3	..	..	..
REX SOLE	..	1	1	2	1	1
SLENDER SOLE	..	1	1	1	1	7
TURBOT	..	2	..	44	1	..
OTHERS	..	..	..	3	..	..
ROCKFISH						
S. FLAVIDUS	2	..	..	..	..	..
S. PINNIGER	..	3	..	..	..	..
OTHERS	..	..	T	9	T	2
OTHER ROUNDFISH						
EULACHON	6	37	13	..	14	12
HERRING	33	13	23	..	6	33
LINGCOD	19	..	..	..	..	10
PACIFIC COD	14	..	8	50	..	18
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	1	..	1	..	..	6
OTHERS	..	2	1	3	..	2
SELACHI						
DOGFISH	100	84	171	62	342	258
SKATES	..	1	..	..	6	12
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	13	14	15	16	17	18
DATE	APRIL 29	APRIL 30	APRIL 30	APRIL 30	APRIL 30	APRIL 30
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1736	0722	0951	1148	1309	1638
DURATION(HR.MIN)	.30	.35	.15	.30	.32	.30
START N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	49.3	50.8	50.7	49.6	49.4	48.7
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	07.9	09.1	12.1	14.7	17.3	18.9
DIRECTION (DEG.TRUE)	155	344	342	340	340	325
FINISH N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	48.2	52.0	51.4	50.8	50.6	49.6
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	07.2	10.4	12.5	15.4	17.9	20.0
DISTANCE NAUT. MI.	1.2	1.5	1.1	1.4	1.4	1.2
DEPTH (METERS)	106-106	130-107	125-125	144-142	155-155	171-169
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	87	..	..	210	254	210
REMARKS	USABLE	GEAR LOST DUMPED UNUSABLE ALL JUNK		USABLE	USABLE	NET TORN USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	13	14	15	16	17	18
DATE	APRIL 29	APRIL 30	APRIL 30	APRIL 30	APRIL 30	APRIL 30
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	87	0	0	210	254	210
SHRIMP						
PINK (JORDANI)	T	..	..	70	36	..
NUM/KG	..	..	..	203	254	..
OTHER SHRIMP	..	..	..	..	..	T
INVERTEBRATES						
SEA URCHINS	..	..	..	2	..	7
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	16
OTHERS	..	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	1	..	..	..	..	..
DOVER SOLE	..	..	..	..	..	53
HALIBUT	..	..	..	..	..	..
REX SOLE	..	..	..	2	T	19
SLENDER SOLE	..	..	..	2	1	6
TURBOT	..	..	..	2	5	65
OTHERS	2	..	..	..	..	2
ROCKFISH						
S. FLAVIDUS	..	..	..	..	..	..
S. PINNIGER	..	..	..	..	2	..
OTHERS	..	..	..	..	5	29
OTHER ROUNDFISH						
EULACHON	..	..	..	55	3	..
HERRING	69	..	..	19	T	..
LINGCOD	..	..	..	8	..	..
PACIFIC COD	3	..	..	7	4	2
PACIFIC TOMCOD	T	..	..	..	..	..
WALLEYE POLLOCK	1	..	..	2	T	..
OTHERS	T	..	..	4	6	..
SELACHI						
DOGFISH	11	..	..	34	192	3
SKATES	..	..	..	3	T	6
OTHERS	..	..	..	..	T	2

APPENDIX TABLE 1 CONTINUED

HAUL NO.	19	20	21	22	23	24
DATE	APRIL 30	MAY 1	MAY 1	MAY 1	MAY 1	MAY 1
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1803	0705	0813	0916	1012	1132
DURATION(HR.MIN)	.30	.33	.31	.09	.24	.31
START N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	51.1	51.2	53.1	52.4	55.4	55.9
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	19.5	19.4	17.2	14.1	16.5	19.9
DIRECTION (DEG.TRUE)	340	338	146	344	329	168
FINISH N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	52.2	52.2	52.0	52.8	56.3	54.6
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	20.1	20.0	15.9	14.2	17.4	19.5
DISTANCE NAUT. MI.	1.1	1.2	1.5	.4	1.3	1.3
DEPTH (METERS)	159-155	158-153	135-134	124-124	125-130	138-141
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	390	139	206	540	69	98
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	19	20	21	22	23	24
DATE	APRIL 30	MAY 1	MAY 1	MAY 1	MAY 1	MAY 1
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	390	139	206	540	69	98
SHRIMP						
PINK (JORDANI)	226	65	7	3	18	21
NUM/KG	237	202	165	182	205	192
OTHER SHRIMP	..	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	1	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	1	..	..	..	..	..
OTHERS	..	..	..	T	..	..
FLATFISH						
DAB (PACIFIC)	..	..	..	..	..	..
DOVER SOLE	1	..	..	..	..	..
HALIBUT	6	3	3	..	..	..
REX SOLE	..	T	..	..	1	T
SLENDER SOLE	2	1	T	..	1	1
TURBOT	39	7	T	..	..	1
OTHERS	1	2	..	..	..	1
ROCKFISH						
S. FLAVIDUS	4	..	1	347	3	..
S. PINNIGER	..	..	..	..	..	..
OTHERS	12	7	..	1	4	2
OTHER ROUNDFISH						
EULACHON	11	15	11	8	21	32
HERRING	..	1	41	5	9	17
LINGCOD	7	..	..	..	..	..
PACIFIC COD	4	5	10	1	1	3
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	..	T	3	5	6	3
OTHERS	5	8	13	8	2	T
SELACHI						
DOGFISH	65	19	116	162	3	12
SKATES	5	6	1	..	..	5
OTHERS	T	..	T	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	25	26	27	28	29	30
DATE	MAY 1	MAY 1	MAY 1	MAY 1	MAY 2	MAY 2
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1251	1415	1526	1655	0722	0846
DURATION(HR.MIN)	.31	.31	.30	.30	.30	.30
START N. LAT. (DEG)	048	048	048	048	048	048
(MIN)	55.7	57.6	58.7	58.6	58.8	59.3
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	22.9	23.9	21.3	21.4	18.7	25.5
DIRECTION (DEG.TRUE)	152	141	145	141	151	319
FINISH N. LAT. (DEG)	048	048	048	048	048	049
(MIN)	54.4	56.7	57.7	57.6	57.5	01.0
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	22.0	22.7	20.2	20.1	17.9	26.6
DISTANCE NAUT. MI.	1.5	1.2	1.2	1.2	1.4	1.2
DEPTH (METERS)	151-152	147-145	135-133	135-134	122-122	147-143
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	286	126	120	88	2049	62
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	25	26	27	28	29	30
DATE	MAY 1	MAY 1	MAY 1	MAY 1	MAY 2	MAY 2
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	286	126	120	88	2049	62
SHRIMP						
PINK (JORDANI)	97	57	48	40	10	17
NUM/KG	206	191	185	192	..	169
OTHER SHRIMP	T	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	1	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	..	..	..	..	T	..
DOVER SOLE	..	..	..	..	..	..
HALIBUT	..	..	..	..	..	..
REX SOLE	T	..	1	T	T	..
SLENDER SOLE	3	3	1	T	T	..
TURBOT	6	4	6	..	T	4
OTHERS	1	T	1	T	T	..
ROCKFISH						
S. FLAVIDUS	..	..	..	4	4	6
S. PINNIGER	..	..	..	..	..	1
OTHERS	4	T	3	..	..	..
OTHER ROUNDFISH						
EULACHON	58	33	23	28	12	25
HERRING	9	5	2	1	7	4
LINGCOD	..	3	5	..	18	..
PACIFIC COD	..	T	..	..	..	..
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	..	2	2	1	3	1
OTHERS	4	T	1	..	3	1
SELACHI						
DOGFISH	102	18	24	14	1992	3
SKATES	2	1	1	..	..	..
OTHERS	..	..	1	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	31	32	33	34	35	36
DATE	MAY 2	MAY 2	MAY 2	MAY 2	MAY 2	MAY 2
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1001	1128	1247	1356	1506	1634
DURATION(HR.MIN)	.30	.17	.30	.30	.27	.30
START N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	00.8	01.2	02.6	02.6	03.8	03.7
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	23.9	21.3	27.9	27.8	25.7	22.1
DIRECTION (DEG.TRUE)	334	160	152	152	153	142
FINISH N. LAT. (DEG)	048	049	049	049	049	049
(MIN)	59.7	00.6	01.6	01.4	02.7	02.7
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	22.9	20.9	26.9	26.8	24.8	20.8
DISTANCE NAUT. MI.	1.7	.7	1.3	1.4	1.3	1.3
DEPTH (METERS)	137-137	127-126	137-141	137-142	129-132	117-116
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	159	835	194	110	659	1357
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	31	32	33	34	35	36
DATE	MAY 2	MAY 2	MAY 2	MAY 2	MAY 2	MAY 2
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	159	835	194	110	659	1357
SHRIMP						
PINK (JORDANI)	47	4	79	38	19	12
NUM/KG	162	192	182	166	178	184
OTHER SHRIMP	..	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	T	..	..	..
OTHERS	..	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	..	..	..	..	..	..
DOVER SOLE	..	..	T	..	..	..
HALIBUT	..	..	3	..	..	..
REX SOLE	T	..	..	..	..	..
SLENDER SOLE	T	..	T	T	1	..
TURBOT	4	2	1	1	1	..
OTHERS	2	..	2	T	T	..
ROCKFISH						
S. FLAVIDUS	..	5	..	..	..	3
S. PINNIGER	..	..	..	2	..	..
OTHERS	1	..	..	T	..	8
OTHER ROUNDFISH						
EULACHON	23	9	41	41	17	16
HERRING	T	1	4	3	17	24
LINGCOD	5	..	8	7	16	..
PACIFIC COD	1	..	..	..	..	3
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	3	..	..	T	1	1
OTHERS	..	..	1	..	..	..
SELACHI						
DOGFISH	66	814	55	18	584	1290
SKATES	7	..	..	..	3	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	37	38	39	40	41	42
DATE	MAY 3	MAY 3	MAY 3	MAY 3	MAY 3	MAY 3
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	0730	0910	1038	1200	1317	1447
DURATION(HR.MIN)	.30	.30	.30	.15	.30	.35
START N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	04.9	06.0	06.2	08.3	08.1	07.5
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	32.2	29.5	26.3	28.5	31.2	33.4
DIRECTION (DEG.TRUE)	148	158	144	151	147	127
FINISH N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	03.6	04.8	05.1	07.9	07.1	06.4
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	31.0	28.8	25.1	28.0	30.3	31.3
DISTANCE NAUT. MI.	1.5	1.3	1.5	.8	1.3	1.6
DEPTH (METERS)	131-137	125-127	121-122	114-115	122-124	125-129
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	1730	2099	1403	317	2082	534
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	37	38	39	40	41	42
DATE	MAY 3	MAY 3	MAY 3	MAY 3	MAY 3	MAY 3
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	1730	2099	1403	317	2082	534
SHRIMP						
PINK (JORDANI)	1361	40	6	8	127	143
NUM/KG	192	154	180	200	167	175
OTHER SHRIMP	..	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	..	..	..	..	..	..
DOVER SOLE	..	..	T	..	T	..
HALIBUT	..	..	..	..	..	..
REX SOLE	..	..	T	1	3	..
SLENDER SOLE	..	4	1	1	8	2
TURBOT	2	5	T	..	..	..
OTHERS	T	T	1	2	T	..
ROCKFISH						
S. FLAVIDUS	..	1	3	38	..	..
S. PINNIGER	..	..	4	..	..	238
OTHERS	5	..	..	..	..	..
OTHER ROUNDFISH						
EULACHON	325	49	75	16	76	39
HERRING	29	1	8	14	15	5
LINGCOD	4	19	7	3	..	..
PACIFIC COD	2	..	..	..	..	..
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	..	T	3	6	3	T
OTHERS	..	T	T	1	T	..
SELACHI						
DOGFISH	2	1980	1295	224	1843	107
SKATES	..	..	..	3	7	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	43	44	45	46	47	48
DATE	MAY 3	MAY 3	MAY 4	MAY 4	MAY 4	MAY 4
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1624	1731	0712	0838	1034	1211
DURATION(HR.MIN)	.30	.32	.30	.30	.30	.13
START N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	06.7	09.1	11.7	13.5	11.3	10.4
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	31.7	38.4	35.7	35.3	41.9	34.8
DIRECTION (DEG.TRUE)	309	308	322	144	122	148
FINISH N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	07.5	10.0	12.9	12.5	10.5	09.2
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	33.3	40.1	36.9	33.9	40.1	34.0
DISTANCE NAUT. MI.	1.4	1.5	1.4	1.5	1.4	1.4
DEPTH (METERS)	128-123	125-123	114-113	108-109	121-122	119-122
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	1276	166	1387	860	83	122
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	43	44	45	46	47	48
DATE	MAY 3	MAY 3	MAY 4	MAY 4	MAY 4	MAY 4
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	1276	166	1387	860	83	122
SHRIMP						
PINK (JORDANI)	560	9	3	28	1	58
NUM/KG	194	234	207	176	265	201
OTHER SHRIMP	..	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	2
OTHERS	..	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	..	T	..	1	T	..
DOVER SOLE	..	..	..	1	..	..
HALIBUT	4	..	..	5	..	..
REX SOLE	..	T	..	T	..	2
SLENDER SOLE	3	T	2	T	T	6
TURBOT	..	..	T	T	..	..
OTHERS	..	..	T	..	T	..
ROCKFISH						
S. FLAVIDUS	..	..	..	3	..	..
S. PINNIGER	78	4	..	..	..	..
OTHERS	..	T	..	..	..	..
OTHER ROUNDFISH						
EULACHON	394	15	51	9	3	13
HERRING	..	T	T	5	11	3
LINGCOD	..	7	..	7	..	21
PACIFIC COD	..	10	3	13	5	..
PACIFIC TOMCOD	..	..	..	T	..	..
WALLEYE POLLOCK	1	T	..	1	1	..
OTHERS	..	T	T	2	T	..
SELACHI						
DOGFISH	236	121	1323	785	62	17
SKATES	T	..	5	..	..	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	49	50	51	52	53	54
DATE	MAY 4	MAY 4	MAY 4	MAY 4	MAY 5	MAY 5
AREA	CLSD	CLSD	CLSD	CLSD	NOSD	NOSD
TIME START (PST)	1318	1428	1617	1713	0720	0834
DURATION(HR.MIN)	.30	.30	.16	.30	.38	.31
START N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	09.5	09.1	10.1	10.3	16.4	16.8
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	32.1	31.7	29.1	26.2	58.1	55.4
DIRECTION (DEG.TRUE)	322	325	330	319	334	322
FINISH N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	10.5	10.1	10.6	11.3	17.5	17.8
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	33.2	32.8	29.6	27.5	59.1	56.4
DISTANCE NAUT. MI.	1.5	1.2	.7	1.3	1.5	1.5
DEPTH (METERS)	118-117	119-118	106-106	97- 97	158-149	150-147
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	2137	649	388	615	685	455
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	49	50	51	52	53	54
DATE	MAY 4	MAY 4	MAY 4	MAY 4	MAY 5	MAY 5
AREA	CLSD	CLSD	CLSD	CLSD	NOSD	NOSD
CATCH TOTAL (KG)	2137	649	388	615	685	455
SHRIMP						
PINK (JORDANI)	243	424	288	..	T	5
NUM/KG	195	185	160	..	..	..
OTHER SHRIMP	..	..	..	..	T	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	..	..	..	1	..	..
DOVER SOLE	T	2	..	..	..	..
HALIBUT	10	..	5	..	..	..
REX SOLE	32	14	T	..	..	..
SLENDER SOLE	T	9	T	T	T	13
TURBOT	1	5	..	..	5	T
OTHERS	5	2	1	2	..	..
ROCKFISH						
S. FLAVIDUS	..	2	..	..	..	63
S. PINNIGER	5	..	..	..	102	23
OTHERS	..	..	..	..	T	4
OTHER ROUNDFISH						
EULACHON	50	80	8	..	9	16
HERRING	3	1	1	T	..	8
LINGCOD	16	4	..	9	17	4
PACIFIC COD	6	2	8	..	17	4
PACIFIC TOMCOD	..	..	..	2	..	..
WALLEYE POLLOCK	4	7	1	..	T	2
OTHERS	1	2	T	17	T	..
SELACHI						
DOGFISH	1755	91	75	584	535	313
SKATES	6	4	1	..	..	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	55	56	57	58	59	60
DATE	MAY 5	MAY 5	MAY 5	MAY 5	MAY 5	MAY 5
AREA	NOSD	NOSD	NOSD	NOSD	NOSD	NOSD
TIME START (PST)	0935	1111	1206	1310	1407	1522
DURATION(HR.MIN)	.30	.31	.30	.30	.31	.30
START N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	18.0	23.8	24.7	23.8	25.1	27.4
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	53.8	59.8	57.7	56.5	55.9	56.1
DIRECTION (DEG.TRUE)	352	346	155	328	147	318
FINISH N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	19.2	25.0	23.8	24.8	24.1	28.4
W.LONG. (DEG)	126	127	126	126	126	126
(MIN)	54.2	00.1	56.5	57.7	54.9	57.6
DISTANCE NAUT. MI.	1.2	1.3	1.3	1.2	1.3	1.5
DEPTH (METERS)	143-143	137-134	132-135	134-132	124-127	113-114
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	501	69	850	424	459	824
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	55	56	57	58	59	60
DATE	MAY 5	MAY 5	MAY 5	MAY 5	MAY 5	MAY 5
AREA	NOSD	NOSD	NOSD	NOSD	NOSD	NOSD
CATCH TOTAL (KG)	501	69	850	424	459	824
SHRIMP						
PINK (JORDANI)	25	..	151	80	43	5
NUM/KG	211	..	253	218	270	448
OTHER SHRIMP	..	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	..	..	..	..	..	T
DOVER SOLE	T	..	..	..	..	..
HALIBUT	..	5	..	6	..	..
REX SOLE	..	1	10	5	9	..
SLENDER SOLE	2	1	15	6	5	1
TURBOT	14	T	..	4	4	..
OTHERS	2	T	8	..	7	..
ROCKFISH						
S. FLAVIDUS	..	..	..	6	..	..
S. PINNIGER	2	..	7	..	3	..
OTHERS	1	..	T	..	4	..
OTHER ROUNDFISH						
EULACHON	16	6	33	38	20	11
HERRING	4	15	17	T	1	1
LINGCOD	5	7	..	..	4	..
PACIFIC COD	3	..	8	3	6	3
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	2	1	1	10	10	24
OTHERS	T	..	T	..	2	T
SELACHI						
DOGFISH	423	32	600	266	341	779
SKATES	2	1	..	..	..	..
OTHERS	T	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	61	62	63	64	65	66
DATE	MAY 5	MAY 5	MAY 6	MAY 6	MAY 6	MAY 6
AREA	NOSD	NOSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1629	1733	0714	0833	0930	1038
DURATION(HR.MIN)	.30	.30	.32	.30	.30	.23
START N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	28.3	26.4	07.5	11.1	09.6	13.0
W. LONG. (DEG)	127	127	126	126	126	126
(MIN)	00.0	02.2	25.0	30.0	30.4	31.8
DIRECTION (DEG.TRUE)	145	331	318	147	327	324
FINISH N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	27.3	27.5	08.6	09.9	10.8	13.9
W.LONG. (DEG)	126	127	126	126	126	126
(MIN)	58.9	03.1	26.2	29.0	31.5	32.8
DISTANCE NAUT. MI.	1.2	1.2	1.4	1.3	1.5	1.2
DEPTH (METERS)	122-122	136-135	105-103	104-105	112-109	101-101
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	336	411	179	758	381	354
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	61	62	63	64	65	66
DATE	MAY 5	MAY 5	MAY 6	MAY 6	MAY 6	MAY 6
AREA	NOSD	NOSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	336	411	179	758	381	354
SHRIMP						
PINK (JORDANI)	19	15	1	26	25	175
NUM/KG	335	302	246	191	191	270
OTHER SHRIMP	..	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	..	..	..	..	..
FLATFISH						
DAB (PACIFIC)	..	..	8	10	7	3
DOVER SOLE	..	..	T	..	T	..
HALIBUT	2	..	..	..	..	..
REX SOLE	3	3	..	4	3	..
SLENDER SOLE	1	1	..	..	1	..
TURBOT	1	3	1	..	..	..
OTHERS	3	T	4	8	1	..
ROCKFISH						
S. FLAVIDUS	..	1	79	4	..	..
S. PINNIGER	..	3	..	..	..	..
OTHERS	T	10	..	T	..	..
OTHER ROUNDFISH						
EULACHON	35	14	12	10	28	3
HERRING	1	..	7	3	4	4
LINGCOD	3	19	..	2	6	3
PACIFIC COD	2	5	34	5	10	..
PACIFIC TOMCOD	..	..	2	5	..	4
WALLEYE POLLOCK	4	26	4	1	4	..
OTHERS	1	2	T	T	T	..
SELACHI						
DOGFISH	256	309	26	679	288	162
SKATES	5	..	1	1	4	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	67	68	69	70	71	72
DATE	MAY 6	MAY 7	MAY 7	MAY 7	MAY 7	MAY 7
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1219	0717	0825	0930	1035	1242
DURATION(HR.MIN)	.31	.30	.30	.19	.30	.30
START N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	16.0	14.6	15.2	17.1	16.2	05.6
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	36.0	36.8	40.8	37.9	33.9	19.6
DIRECTION (DEG.TRUE)	140	310	138	308	137	326
FINISH N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	14.9	15.4	14.2	17.7	15.2	06.7
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	34.8	38.2	39.4	39.0	32.4	20.9
DISTANCE NAUT. MI.	1.5	1.6	1.5	1.0	1.4	1.4
DEPTH (METERS)	102-103	109-108	113-114	102-100	93- 92	91- 92
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	466	369	107	165	750	888
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	67	68	69	70	71	72
DATE	MAY 6	MAY 7	MAY 7	MAY 7	MAY 7	MAY 7
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	466	369	107	165	750	888
SHRIMP						
PINK (JORDANI)	366	190	2	86	..	..
NUM/KG	304	275	232	239	..	..
OTHER SHRIMP	..	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	..	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	..	..	T	..	T
FLATFISH						
DAB (PACIFIC)	11	T	..	8	26	81
DOVER SOLE	..	T	..	..	T	T
HALIBUT	..	..	..	..	..	2
REX SOLE	..	..	T	..	3	8
SLENDER SOLE	..	..	2	..	..	..
TURBOT	3	..	1	..	T	..
OTHERS	..	..	6	3	12	31
ROCKFISH						
S. FLAVIDUS	..	..	..	..	1	..
S. PINNIGER	..	..	..	..	..	..
OTHERS	..	..	T	..	..	..
OTHER ROUNDFISH						
EULACHON	38	22	1	13	16	..
HERRING	18	3	1	12	7	..
LINGCOD	..	..	10	..	..	4
PACIFIC COD	..	..	..	12	15	..
PACIFIC TOMCOD	9	2	..	8	16	60
WALLEYE POLLOCK	..	..	1	4	..	..
OTHERS	T	T	..	..	3	9
SELACHI						
DOGFISH	21	152	83	19	651	691
SKATES	..	..	..	..	..	2
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	73	74	75	76	77	78
DATE	MAY 7	MAY 7	MAY 7	MAY 7	MAY 8	MAY 8
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1353	1446	1600	1713	0717	0833
DURATION(HR.MIN)	.29	.30	.30	.32	.30	.30
START N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	06.5	05.5	05.0	07.1	03.0	00.7
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	24.5	23.1	25.1	27.2	18.8	17.4
DIRECTION (DEG.TRUE)	138	320	324	323	310	318
FINISH N. LAT. (DEG)	049	049	049	049	049	049
(MIN)	05.6	06.5	06.1	08.3	03.9	01.8
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	23.3	24.3	26.2	28.4	20.3	18.5
DISTANCE NAUT. MI.	1.3	1.2	1.3	1.4	1.3	1.3
DEPTH (METERS)	109-109	108-108	123-119	117-114	100-107	111-111
SURFACE TEMP (DEG.C)	..	..	..	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	519	1393	447	987	80	62
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	73	74	75	76	77	78
DATE	MAY 7	MAY 7	MAY 7	MAY 7	MAY 8	MAY 8
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	519	1393	447	987	80	62
SHRIMP						
PINK (JORDANI)	172	1019	269	711	T	T
NUM/KG	196	229	190	211	..	..
OTHER SHRIMP	..	..	..	..	..	..
INVERTEBRATES						
SEA URCHINS	..	..	..	..	..	..
HEART URCHIN	..	..	7	..	..	..
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	..	8	..	..	..
FLATFISH						
DAB (PACIFIC)	6	18	21	28	7	6
DOVER SOLE	..	T	..	..	..	..
HALIBUT	..	14	4	7	..	..
REX SOLE	..	4	6	21	T	3
SLENDER SOLE	..	T	21	7	T	T
TURBOT	..	..	3	7	..	2
OTHERS	1	5	9	7	2	T
ROCKFISH						
S. FLAVIDUS	..	62	6	1	6	1
S. PINNIGER	..	..	..	..	..	..
OTHERS	..	..	..	..	..	T
OTHER ROUNDFISH						
EULACHON	T	..	25	30	23	15
HERRING	T	T	..	..	T	T
LINGCOD	14	5	11	2	..	..
PACIFIC COD	315	168	11	7	25	4
PACIFIC TOMCOD	10	11	..	..	5	1
WALLEYE POLLOCK	..	..	8	14	1	2
OTHERS	1	2	T	..	T	T
SELACHI						
DOGFISH	..	83	32	138	4	28
SKATES	..	2	6	7	7	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	79	80	81
DATE	MAY 8	MAY 8	MAY 8
AREA	CLSD	CLSD	CLSD
TIME START (PST)	1040	1147	1241
DURATION(HR.MIN)	.20	.30	.30
START N. LAT. (DEG)	048	048	048
(MIN)	48.7	45.6	43.6
W. LONG. (DEG)	126	126	126
(MIN)	20.1	11.5	09.2
DIRECTION (DEG.TRUE)	144	137	139
FINISH N. LAT. (DEG)	048	048	048
(MIN)	48.0	44.7	42.5
W.LONG. (DEG)	126	126	126
(MIN)	19.2	10.3	08.0
DISTANCE NAUT. MI.	1.0	1.2	1.3
DEPTH (METERS)	176-174	142-137	133-129
SURFACE TEMP (DEG.C)	..	..	..
BOTTOM TEMP (DEG.C)	..	..	..
TYPE OF GEAR	8	8	8
TOTAL CATCH (KG)	231	77	92
REMARKS	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	79	80	81
DATE	MAY 8	MAY 8	MAY 8
AREA	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	231	77	92
SHRIMP			
PINK (JORDANI)	..	17	4
NUM/KG	..	177	214
OTHER SHRIMP	..	..	..
INVERTEBRATES			
SEA URCHINS	..	..	1
HEART URCHIN	..	2	..
SEA CUCUMBER	1	..	..
OTHERS	..	1	..
FLATFISH			
DAB (PACIFIC)	..	..	..
DOVER SOLE	37	..	..
HALIBUT	5	..	..
REX SOLE	14	3	..
SLENDER SOLE	5	1	1
TURBOT	129	11	3
OTHERS	T	T	1
ROCKFISH			
S. FLAVIDUS	..	..	..
S. PINNIGER	..	..	..
OTHERS	28	1	4
OTHER ROUNDFISH			
EULACHON	1	12	24
HERRING	..	5	33
LINGCOD	4	4	5
PACIFIC COD	3	3	2
PACIFIC TOMCOD	..	..	..
WALLEYE POLLOCK	..	T	1
OTHERS	1	..	1
SELACHI			
DOGFISH	1	11	8
SKATES	1	6	4
OTHERS	1	T	..

Footnotes to Appendix Table 1.

[a]Area : CLSD = Clayoquot Sound (Tofino ground); NOSD = Nootka Ground
[b]Time Start: PST = Pacific Standard Time
[c]Type of gear: 8 = Nat. Mar. Fish. shrimp trawl
[d]Trace (<1 kilogram)
Others:

Invertebrates:	anemone; basket stars; brittle stars; cucumbers; prawn, squid (rossia and loligo); urchins.
Flatfish:	Butter sole; Dover sole; English sole; Flathead sole; Halibut; Petrale sole; Rex sole; Slender sole.
Rockfish:	*Sebastes alutus; S. crameri; S. elongatus; S. entomelas; S. paucispinis; S. proriger*
Roundfish:	Blackcod; Shiner perch; Pacific hake; Pacific tomcod; Walleye pollock; shad; wolf-eef.
Selachii:	Ratfish; skate